

AMENDMENT AND RESPONSE

Serial Number: 09/132,157

Filing Date: August 11, 1998

Title: SILICON-GERMANIUM DEVICES FOR CMOS FORMED BY ION IMPLANTATION AND SOLID PHASE EPITAXIAL REGROWTH

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wherein the  $\text{Si}_{1-x}\text{Ge}_x$  channel region is formed from ion implanting germanium (Ge) through the gate oxide;

wherein the germanium molar fraction is less than about 0.6; and

wherein the  $\text{Si}_{1-x}\text{Ge}_x$  channel region has a channel length less than  $7\mu\text{m}$ .

41. (New) A semiconductor transistor formed on a silicon substrate, comprising:

a  $\text{Si}_{1-x}\text{Ge}_x$  channel region, having a germanium molar fraction of  $x$ , and formed in the substrate, underneath a gate oxide and between a source region and a drain region without a silicon layer interposed between the  $\text{Si}_{1-x}\text{Ge}_x$  channel region and the gate oxide;

wherein the  $\text{Si}_{1-x}\text{Ge}_x$  channel region is formed from ion implanting germanium (Ge) into the substrate at a dose of approximately  $2 \times 10^{16}$  atoms/cm<sup>2</sup>, and wherein the Ge is implanted at an energy of approximately 20 to 100 keV;

wherein the germanium molar fraction is less than about 0.6; and

wherein the  $\text{Si}_{1-x}\text{Ge}_x$  channel region has a channel length less than  $7\mu\text{m}$ .

42. (New) The transistor of claim 41, wherein the Ge is dispersed in the substrate to a depth of approximately 100 to 1,000 angstroms.

43. (New) The transistor of claim 41, wherein the Ge is dispersed in the substrate to a depth of approximately 300 angstroms and the germanium molar fraction is less than about 0.4.

**REMARKS**

Applicant has carefully reviewed and considered the Office Action mailed September 1, 1999, and the references cited therewith.

Claims 38-43 are added. Claims 11-14, 24-32 and 38-43 are now pending in the application.

Applicant respectfully requests reconsideration of the above-identified patent application as amended in view of the following remarks.